

FRAMING SYSTEM FOR SECURING AND DISPLAYING FLAT SHEET MATERIALS

TECHNICAL FIELD

The present invention relates to a framing system for mounting and displaying thin-flat sheet materials, such as posters or the like. Further the present invention relates to a kit including the framing system and a poster.

BACKGROUND OF THE INVENTION

Typically, poster or other sheet materials are sold in stores without any frames. It is sometimes difficult to provide an adequate frame for such a poster that is relatively compact and easy to assemble.

Frames for posters are known in the art. For example, such frames are shown in United States Patent Nos. 5,515,629; 4,986,013; 4,512,095; 4,176,480; and 4,129,953. The prior art does not provide a framing system that is simple to assemble and disassemble.

It is desirable to provide a frame that can easily be assembled and disassembled. With this type of system, the framing system can be marketed and delivered to a buyer in such a manner so as to require very little space. Further, the frame system can be assembled without the need for any tools. It is also desirable to provide a kit including a package having the framing system therein and also including the thin flat sheet material, such as a poster which is to be secured and displayed by the frame.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a frame system for mounting or displaying a poster or other sheet material. The system comprises a plurality of frame members adapted to be secured together to form a base structure. The system further comprises a plurality of separate clamping members adapted for independent detachable connection with the base structure to retain the poster between the base structure and the clamping members.

It is an object of the present invention to provide a frame system for mounting and displaying a poster that can easily be assembled and which when unassembled requires relatively little space.

It is a further object of the present invention to provide a frame system having clamping members that are detachable from the base structure to retain the poster or sheet material between the clamping members and the base structure.

It is a further object of the present invention to provide a frame system that is easily to assemble and does not require a rigid backing member.

It is a further object of the present invention to provide a frame system that is easily to assemble and does not require any tools in the assembly process.

It is a further object of the present invention to provide a kit including a container, frame members, clamping members and the sheet material, which kit is compact, allowing for easy marketing or storage.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred exemplary embodiment of the present invention will hereinafter be described in conjunction with the appended drawings, wherein like designations denote like elements, and:

Figure 1 is a perspective view of a first embodiment of a framing system of the present invention;

Figure 2 is an exploded, perspective view of the framing system of Fig. 1;

Figure 3 is a perspective view of adjacent ends of the framing members of Fig. 1 showing the mortise and tenon joint between the frame members;

Figure 4 is a cross-sectional view of the assembled mortise and tenon joint of Fig. 3;

Figure 5 is a cross-sectional view taken along the 5-5 line of Fig. 1;

Figure 6 is a perspective view of a second embodiment of a framing system of the present invention;

Figure 7 is an exploded, perspective view of the framing system of Fig. 6;

Figure 8 is a perspective view of adjacent ends of the framing members of Fig. 6 showing the mortise and tenon joint between the frame members;

Figure 9 is a cross-sectional view taken along the 9-9 line of Fig. 6;

Figure 10 is perspective view of a first embodiment of a protective canister of the invention, showing certain parts of the framing system of Fig. 1 enclosed therein;

5 Figure 11 is a perspective view of a second embodiment of a protective canister of the invention, showing certain parts of the framing system of Fig. 1 enclosed therein;

10 Figure 12 is an exploded, perspective view of another alternate embodiment of the framing system;

Figure 13 is a perspective view of adjacent ends of the framing members of Fig. 12 showing the mortise and tenon joint between the frame members;

15 Figure 14 is a cross sectional view of the assembled frame members of the frame system of Figure 12; and

20 Figure 15 is a cross-sectional view of the assembled mortise and tenon joint of Fig. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

25 Referring first to the embodiment of Figs. 1-5, and in particular to Fig. 1, there is shown a framing system 20 that comprises a base structure 22, a clamping structure 24, and a translucent, protective covering 26, all of which can be assembled together to mount and display a poster or other sheet material 28.

30 Referring now also to Fig. 2, the base structure 22 comprises four elongated frame members 31-34. Poster 28 has a rectangular shape, and therefore two of the frame members will be greater in length than the remaining two. Each frame

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member 31-34 extends linearly between a pair of inwardly angled ends 36. Each angled end 36 fits together with an adjacent, complementary end 36 to form a right angle, as can be seen in Figs. 3 and 4. The frame members are secured into their right angle arrangement by means of a tenon 38 which mates with a mortise hole 40 in the adjacent frame member. It should be noted that the outer periphery retains a sharp right angle, while the inner periphery is tapered (as indicated at 42) for increased structural cohesion. This mortar and tenon joint is capable of preserving the structural rigidity needed in the absence of a solid backing. The top surfaces of the frame members thus provides flat front surfaces on which the poster or other sheet material is secured.

The clamping structure 24 comprises four clamping members 45-48 that clamp the translucent cover 26 and poster (or other displayed object) 28 between the clamping members and base frame members. Each of the frame members 31-34 has one or more receiving holes 50. These receiving holes are capable of receiving and securing complementary clamping pegs 52 which extend downward from the clamping members, as seen in Figs. 2 and 5. Once assembled, the base structure 22 provides a rigid framework which supports and retains the translucent cover 26 and displayed object 28 in place.

In addition to receiving holes 50 in the base frame members 31-34, both the translucent covering 26 and displayed object 28 have a plurality of complementary clearance holes 54. In this layered manner, the assembled base structure 22 is placed first with its receiving holes 50 upwardly exposed. The displayed object 28 is laid on top of the base structure 22 so that all of its clearance holes 54 line up with the receiving holes 50. The translucent protective covering 26 is laid on top of the displayed object 28 in a similar manner. Lastly, each clamping member 45-48 is placed onto its corresponding frame member 31-34. The clamping pegs 52 then pass through the aligned holes 54 of the protective covering and the display object, and are press fit into the receiving holes 50 in the frame members. In

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this manner, the base structure 22 and clamping structure 24 together firmly clamp the two thin objects into place, as can be seen in Fig. 5.

Turning now to Figs. 6-9, there is shown a second embodiment which is similar to the first embodiment, except that no protective cover is used and the clamping members snap into channels formed in the frame members. In particular, the framing system 60 shown in Fig. 6 includes a base structure 62 and clamping structure 64 that snap together to mount and retain a displayed object 66 in place. As depicted in Fig. 7, the base structure 62 is formed from frame members 71-74, each of which has a unitary extended shoulder 76 that, together with a ledge 78 of the frame members, forms a channel 80 running the length of each frame member. The ledge 78 provides a flat front surface for receiving the poster or other sheet material. The clamping structure 64 is formed from four smaller clamping members 81-84 that can have a cross-sectional shape similar to quarter-round or shoe molding. The clamping members have mitered ends 86 and are sized to fit into the channels 80 of the frame members.

As in the first embodiment, the frame members 71-74 each have one or more holes 86 that received corresponding pegs 88 extending from the backside of the clamping members 81-84. The displayed object has corresponding clearance holes 90 through which the pegs 88 extend.

When the base structure 62 is assembled, the displayed object 66 can simply be laid onto the ledges 78 and the shoulder portions 76 of the assembled frame members will help align the receiving holes 90 of the displayed object 66 with the receiving holes 86 of the frame members. This simplifies assembly for the user.

Fig. 10 depicts the individual components of a first embodiment of a protective canister assembly 100 of the present invention. Protective canister 100 comprises several components: the canister body 102, canister endcaps 104 and 106, and identifying labels 108 and 110. The canister body 102 is a generally rigid,

translucent, cylindrical tube that is open at each end. The canister body 102 is preferably constructed of a durable, translucent plastic. This allows the contents of the canister (and in particular the displayed object) to be easily identified while also being protected. The canister body has a diameter which is large enough to avoid overly constricting the rolled contents. In addition, its diameter must be able to accommodate the disassembled base structures 12, 62 and clamping structures 14, 64. If the diameter is too narrow, the contents will be rolled too tightly or will crush the framing and clamping members into the displayed object, possibly causing creases, tears or other permanent damage. The diameter will be dictated by the general size of its contents. The cylinder 102 must have a minimal length equal to or greater than the longest dimension of its contents, which will generally be the longer base frame members.

The endcaps 104, 106 are also of a durable plastic material, but are not translucent. The endcaps slide over top of the canister body 102, and therefore require a diameter slightly larger than the canister. Endcaps which fit into, as opposed to over top of, the canister body could possibly crush the edges of the contents and are not preferred. The endcaps slide over top of the canister until they are obstructed from sliding further due to the rigid circular backing attached to the back of each endcap. Once in place, the endcaps in combination with the cylinder will enclose the contents and prevent them from sliding out.

Referring to Fig. 11, there is shown a second embodiment of a protective canister of the invention. This embodiment is similar to that of Fig. 10, except that it includes a stopper 112 on the inside of the canister, towards the top. This stopper 112 is similar to an endcap, but is designed to fit on the inside of the canister. The stopper has a slightly smaller diameter than the inside diameter of the canister body to provide a tight fit. The stopper rests on top of the contents of the canister and creates a separate volume 114 between the contents and the top endcap. Since the longest object within the canister will be the longest base frame member, there is no worry of damaging the rolled displayed object. This volume 114 can be

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used to store and display memorabilia or other objects desired by the user. For example, if the displayed object were a baseball related poster, it would be appropriate to put a memorabilia baseball within the confined volume. Similarly, an action figure 116 can accompany a superhero poster. In this embodiment, the protective canister would remain the same, with the exception of the stopper and perhaps a lengthened canister body, to accommodate the addition of the confined volume 114.

Figures 12 through 14 show another embodiment which is similar to the second embodiment except that the mortise and tenons are slightly modified. Specifically, as can be seen in Figure 12, framing system 60' shown in Figure 12 includes a base structure 62' and clamping structure 64' that snap together to mount and retain a displayed object 66' in place. As best seen in Figure 12, the base structure 62' includes two side frame members, 73', 74', a top frame member 71' and a bottom frame member 72'. Each of the frame members has a unitary extending shoulder 76' that, together with a ledge 78' of the frame members 71'-74' forms a channel 80' running the length of each frame member. The ledge 78' provides a flat front surface for receiving the poster or other sheet material.

The clamping structure 64' is formed from four smaller clamping members 81'-84' that can have a cross-sectional shape similar to quarter-round or shoe molding. The clamping members 81'-84' have mitered ends 87' and are sized to fit into the channels 80' of the frame members 71'-74'.

As with the second embodiment, the frame members 71'-74' each have one or more holes 86' that receive corresponding pegs 88' extending from the backside or underside of the clamping members 81'-84'. The displayed object has corresponding clearance holes 90' through which the pegs 88' extend. Securing of the poster or other sheet material is as discussed above.

In the first two embodiments discussed above, the mortise and tenons have a configuration such that each frame member 31-34 and 71-74 has a mortise 40 on one end thereof and a tenon 38 on the other end thereof. Complementary ends of the frame members are aligned and the respective frame members are secured into right angle arrangement by means of inserting the tenon 38 in the corresponding mortise 40.

Further, as shown best in Figures 3 and 8, the tenon 38 and mortise 40 each extend generally in the same direction as the angled end 36 of the frame member. This arrangement is best seen in Figure 4. As seen, the tenon 38 extends outwardly and generally perpendicularly from the angled surface of the end 36 of the frame member. Similarly, the mortise extends inwardly and generally perpendicularly from the angled surface 36 of the adjacent frame member.

In the alternate embodiment of Figures 12-14, the tenon 38' and mortise 40' joint is slightly modified. First, tenons 38' are each located on the same frame member. As shown, the tenons 38' are located on the side frame members 73',74'. The mortises are each located on the top and bottom side frame members 71',72', respectively. It will be appreciated, however, that the tenons 38' could be located on the top 71' and bottom 72' side frame members and the mortises on the side frame members 73',74'.

Further, the tenons 38' and mortises 40' extend at an angle relative to the angled surface of the end of the frame member. As best seen in Figure 15, the tenon 38' extends in a direction generally perpendicularly to the axis of the side frame member 73'. The corresponding mortise extends generally parallel to direction of the complementary bottom side frame member 72'. When the tenon 38' is secured in the mortise 40', the frame members are secured to form right angles as in the first and second embodiments discussed above.

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As with the first two embodiments described above, the clamping members 81'-84' are retained in position only by their connection to the base frame members via the pegs 88' and corresponding holes 86'. That is, the clamping members 81'-84' are independent members and preferably do not interconnect at their respective ends. The respective ends of the clamping members 81'-84' are mitered so as to provide a relatively tight fit between adjacent ends of the clamping members 81'-84'. Thus, the clamping members in each of the embodiments are detachably connected to the base frame members. With the clamping members configured in this manner, there is provided a quick and simple way of framing a poster. Because the clamping members are detachable, the framing system can easily be dismantled and stored in a relatively small space. Similarly this arrangement allows for the poster to easily be changed.

Also, as best viewed in Figures 12 and 14, the tenon 38' and mortises 40' may each include a receiving hole 86' therethrough for receiving a clamping peg 88' on the respective clamping member. With a connection made in this manner, the clamping members 81'-84' serve the further purpose of securing adjacent frame members together. It will be appreciated that while not specifically shown in the figures, this arrangement can also be used with the first two embodiments described above.

It should be noted that the invention could be implemented in a number of different ways that will be apparent to those skilled in the art. For example, the pegs could be placed on the frame members and the receiving holes on the clamping members. Alternatively, the pegs and holes can alternate on the respective frame member and clamping member. Further, a protective cover can be used in any of the embodiment discussed above. Further, magnetic strips could be used to replace the pegged clamping members, with each magnetic strip being attached to one of the extended ledges opposite a metal strip or complementary magnetic strip located on the corresponding clamping member. Also, a different type of jointing system could be used to secure the right angle corners. For example, the corners can comprise dove

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tail joints that can be assembled and disassembled by sliding the dovetails of one frame member into and out of engagement with the corresponding dove tails of the adjacent frame member. As will now be appreciated, the framing system described herein provides a frame structure without the need for a solid backing, and provides a
5 canister arrangement for packaging and subsequent storage of the framing system and displayed object.

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